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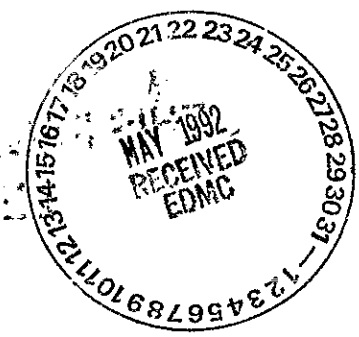
NOTICE OF INTENT FOR EXPANSION UNDER INTERIM STATUS



PUREX PLANT HANFORD FACILITY, RICHLAND, WASHINGTON

U.S. DEPARTMENT OF ENERGY, DOE RICHLAND FIELD OFFICE

MARCH 1992

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CONTENTS

APPENDICES

FIGURES

1.0 INTRODUCTION

The Washington State Department of Ecology (Ecology) *Dangerous Waste Regulations*, Washington Administrative Code (WAC) 173-303-281, requires that existing dangerous waste management facility owners and/or operators submit a Notice of Intent (NOI) before submittal of a permit application for new or expanded dangerous waste management units. The following information is being filed with Ecology by the U.S. Department of Energy, DOE Richland Field Office (DOE-RL), the owner and operator. This NOI is to serve notice of the intent to add tank storage capability to existing treatment tanks U3, U4, and F18 at the PUREX (plutonium-uranium extraction) Plant on the Hanford Facility, Richland, Washington.

The PUREX Plant is being expanded under interim status to add the capability for tank storage in waste treatment tanks U3, U4, and F18 as part of ongoing waste minimization efforts. The Part A Dangerous Waste Permit Application, Form 3, will be modified to add the process code 'S02' specifying tank storage for the designated tanks. This modification will result in the reduced generation of radioactive dangerous waste (mixed waste) at the PUREX Plant and also will reduce the volume of mixed waste subsequently stored in the Double-Shell Tank System.

Presently, tanks U3, U4, and F18 are operated under interim status and are used for waste treatment only. Mixed waste generated at the PUREX Plant is collected in the tanks, chemically adjusted to meet the waste acceptance criteria of the Double-Shell Tank System, and transferred to a designated double-shell tank within 90 days. A minimum liquid level is required in the tanks to allow agitation, sampling, and transfer. If the minimum liquid level is not present in the tanks, water must be added resulting in a greater quantity of waste, which subsequently must be managed. The expansion of the waste management unit for waste storage in tanks U3, U4, and F18 will allow waste to be accumulated in the tanks until an adequate volume is available for transfer without the addition of water. This expansion will facilitate waste transfer operations and also will serve to reduce the volume of waste generated at the PUREX Plant.

The following identifies the owner and operator of the Hanford Facility and the primary contact:

Owner and Operator: U.S. Department of Energy, DOE Richland Field Office

Manager, DOE Richland Field Office: Mr. John D. Wagoner

Contact, DOE Richland Field Office: Mr. R. D. Izatt

Address: U.S. Department of Energy
DOE Richland Field Office
Post Office Box 550
Richland, Washington 99352

Telephone: (509) 376-5441.

2.0 FACILITY DESCRIPTION AND GENERAL PROVISIONS

The Hanford Facility is defined as a single *Resource Conservation and Recovery Act* (RCRA) *of 1976* facility, identified by the U.S. Environmental Protection Agency (EPA)/State Identification Number WA7890008967, that consists of over 60 treatment, storage, and/or disposal (TSD) units conducting dangerous waste management activities. These TSD units are included in the *Hanford Facility Dangerous Waste Part A Permit Application* (DOE-RL 1988). The Hanford Facility consists of the contiguous portion of the Hanford Site that contains these TSD units and, for the purposes of the RCRA, is owned and operated by the U.S. Department of Energy (excluding lands north and east of the Columbia River, river islands, state owned or leased lands, lands owned by the Bonneville Power Administration, lands leased to the Washington Public Power Supply System, and the Ashe Substation). The Hanford Facility is a single site for purposes of provisions regulating 'offsite' or 'onsite' waste handling.

The following sections provide a description of the dangerous waste management unit, along with other general provisions specified in WAC 173-303-281.

2.1 LOCATION OF PROPOSED EXPANSION

The PUREX Plant is located in the 200 East Area of the Hanford Facility, Benton County, Washington. Small-scale maps depicting the Hanford Facility and the location of the PUREX Plant are provided in Figures 1 and 2. Large-scale maps, a topographic map, which meet the 1-inch- (2.54-centimeter-) equals-not-more-than-200-feet (61-meters) requirement, and a legal description of the PUREX Plant are provided in Appendix A.

2.2 DESCRIPTION OF TYPES AND AMOUNTS OF WASTE TO BE MANAGED ANNUALLY

The waste to be managed in tanks U3, U4, and F18 includes mixed waste collected from all sections of the PUREX Plant. Generation rates for the miscellaneous waste received and subsequently treated and stored in the tanks vary, depending on the magnitude and frequency of operations conducted at the PUREX Plant. During nonoperational periods, the majority of the waste treated and stored in tanks consists of nonregulated rinsewater containing minute amounts of regulated material. The three tanks will provide a nominal storage capacity of 21,000 gallons (79,493 liters).

Tanks U3 and U4 are nominally 8,000-gallon (30,280-liter) stainless steel tanks that receive miscellaneous waste from throughout the headend portion of the PUREX Plant (Figure 3). Waste sources can include laboratory waste under 5 millirem (decontamination solutions, samples after analysis); laboratory vacuum pump air separator condensate; dilute ammonium nitrate from the main stack and filter flush water; solutions from railcar decontamination operations; low pH solutions from acid fractionator building sumps; and water from the railroad tunnel sumps. The majority of the liquid received at tanks

U3 and U4 is water. Low pH accounts for the primary chemical constituent of the waste with the average pH of a batch of waste collected being 4.5 (based on analytical data). Occasionally the pH of the waste collected can fall below 2.0; therefore, the waste received is periodically corrosive dangerous waste (D002). Other constituents from spent laboratory solutions and decontamination solutions also could be present in small amounts. Because many different constituents could be present in small quantities from the laboratory and from decontamination operations, the waste received at the tanks might be given dangerous waste numbers of D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, WT01, WT02, WC01, WC02, WP01, and WP02.

Tank F18 is a nominally 5,000-gallon (18,927-liter) stainless steel tank that receives mixed waste solutions from the PUREX Canyon cell floor sumps; drainage from the vessel vent system, condenser vent system, and sampler headers; hot shop maintenance cell solutions; sample gallery floor drain solutions; and solutions generated from bottoms changeouts of the F-11 concentrator (Figure 4). The primary dangerous constituent in tank F18 solutions is nitric acid, causing the solutions to be designated as a corrosive dangerous waste (D002) due to low pH. The waste received at the tank also could contain any of the other various chemical constituents in generally low concentrations used at the PUREX Plant and might be given dangerous waste numbers of D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, WT01, WT02, WC01, WC02, WP01, and WP02.

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2.3 DESCRIPTION OF WASTE MANAGEMENT ACTIVITIES SUBJECT TO DANGEROUS WASTE PERMITTING REQUIREMENTS

Mixed waste solutions generated at the PUREX Plant are collected in tanks U3, U4, and F18 until sufficient quantities are accumulated to allow agitation, sampling, treatment, and transfer [approximately 3,500 gallons (13,249 liters) for tanks U3 and U4 and 1,900 gallons (7,192 liters) for tank F18]. Once an adequate volume of waste is present in the tanks, the waste is sampled and a caustic ratio analysis is performed. Based on the sampling results, sodium hydroxide and sodium nitrite solutions are added to the waste to meet the Double-Shell Tank System waste acceptance criteria. The waste is mixed for approximately 1 hour, and resampled to ensure the waste exceeds a pH of 12 and contains 0.011 molar of sodium nitrite (Double-Shell Tank System waste acceptance criteria for corrosion control). Following verification that the waste meets the Double-Shell Tank System waste acceptance criteria, the waste is transferred to a designated double-shell tank.

To avoid storage of the waste in the tanks beyond 90 days, present practices could necessitate the addition of water to the tanks to achieve the minimum volume of liquid required for transfer. This practice increases the volume of waste that subsequently must be stored in the Double-Shell Tank System. The expansion of the waste management unit to allow for tank storage will provide for the accumulation of waste in the tanks until sufficient quantities are available to transfer the waste without the addition of water. This will eliminate the practice of adding water solely for the purpose of transferring the waste out of the tanks within 90 days.

2.4 DESCRIPTION OF MAJOR EQUIPMENT

The major equipment associated with the expansion includes tanks U3, U4, and F18. Tanks U3 and U4 (Figure 5) are nominally 8,000-gallon (30,283-liter) miscellaneous waste tanks that were placed in service in 1956. The tanks are constructed of 304L stainless steel and are located in U-Cell, in the northeast portion of the PUREX 202-A Building. Tank F18 (Figure 6) is a nominally 5,000-gallon (18,927-liter) miscellaneous waste tank that also was placed in service in 1956. Tank F18 is constructed of 304L stainless steel and is located in F-Cell of the PUREX 202-A Building. Ancillary piping associated with the tanks includes all waste transfer piping from the waste tanks to the 241-A-151 diversion box in the Double-Shell Tank System. A partial floor plan of the 202-A Building showing the general location of U-Cell, F-Cell, and the 241-A-151 diversion box is included as Figure 7. Figure 8 provides a cut-a-way view of the PUREX Plant showing the locations of tanks U3, U4, and F18.

2.5 COMPLIANCE WITH STATE ENVIRONMENTAL POLICY ACT

The *State Environmental Policy Act of 1971* Environmental Checklist is provided as Appendix B.

2.6 COMPLIANCE WITH SITING STANDARDS

The proposed expansion involves only the addition of storage capacity to existing treatment tanks at the PUREX Plant. The storage of waste in the treatment tanks is expected to have a positive impact on the environment as it will reduce the amount of waste required to be stored at the Double-Shell Tank System.

2.6.1 Criteria for Elements of the Natural Environment

The following section addresses measures in place at the PUREX Plant to provide protection of the natural environment. Each element of the criteria identified in WAC 173-303-282(6) is addressed.

2.6.1.1 Earth. This section addresses the potential for the release of dangerous waste into the environment because of structural damage resulting from the conditions of the earth at the waste management unit.

2.6.1.1.1 Seismic Risk. The PUREX Plant is located in Benton County, Washington, and has been identified as being in Zone 2B in accordance with the Uniform Building Code (ICBO 1991). The original design specifications for the PUREX Plant specified that earthquake resistance be provided in accordance with the 1952 Uniform Building Code, Zone 2, earthquake regulations.

A seismic hazards onsite risk analysis has been performed on the PUREX Plant. This risk analysis concluded that onsite seismic risks from the operation of the PUREX Plant were within an acceptable level.

2.6.1.1.2 **Subsidence.** The PUREX Plant is located in the 200 East Area of the Hanford Facility. This area of the Hanford Facility is not considered an area subject to subsidence.

2.6.1.1.3 **Slope or Soil Instability.** The PUREX Plant is not located in an area of slope or soil instability, or is it in an area affected by unstable slope of soil conditions.

2.6.1.2 **Air.** The PUREX Plant is not an incineration unit. Discussion of measures taken to reduce air emissions resulting from incineration is not applicable.

2.6.1.3 **Water.** This section addresses the potential for contaminating water of the state in the event of a release of dangerous waste.

2.6.1.3.1 **Surface Water.** The following addresses considerations for the protection of surface water.

2.6.1.3.1.1 **Flood, Seiche, and Tsunami Protection.** Three sources of potential flooding of the area were considered: (1) the Columbia River, (2) the Yakima River, and (3) storm-induced run-off in ephemeral streams draining the Hanford Site. No perennial streams occur in the central part of the Hanford Site.

The Federal Emergency Management Agency has not prepared floodplain maps for the Columbia River through the Hanford Site. The flow of the Columbia River is largely controlled by several upstream dams that are designed to reduce major flood flows. Based on a U.S. Army Corps of Engineers study of the flooding potential of the Columbia River that considered historical data and water storage capacity of the dams on the Columbia River (COE 1969), the U.S. Department of Energy (ERDA 1976) has estimated the probable maximum flood (Figure 9). The estimated probable maximum flood would have a larger floodplain than either the 100- or 500-year floods. The PUREX Plant is well above the elevation of the Columbia River probable maximum flood and, therefore, is not within the 100- or 500-year floodplain.

The 100-year floodplain for the Yakima River, as determined by the Federal Emergency Management Agency (FEMA 1980), is shown in Figure 10. The PUREX Plant is not within the floodplain.

The only other potential source of flooding of the PUREX Plant run-off from a large precipitation event in the Cold Creek watershed. This event could result in flooding of the ephemeral Cold Creek. Skaggs and Walters (1981) have given an estimate of the probable maximum flood using conservative values of precipitation, infiltration, surface roughness, and topographic features. The resulting flood area (Figure 11) would not affect the PUREX Plant. The 100-year flood would be less than the probable maximum flood.

2.6.1.3.1.2 **Perennial Surface Water Bodies.** There are no perennial surface water bodies within one-quarter mile (0.4 kilometer) of the PUREX Plant.

2.6.1.3.1.3 **Surface Water Supply.** The PUREX Plant is not located within an area designated as a watershed or is it located within one-quarter mile (0.4 kilometer) of a surface water intake for domestic water.

2.6.1.3.2 **Groundwater.** The following addresses consideration for the protection of groundwater. The PUREX Plant is an "existing facility" as defined by WAC 173-303-282(3); therefore, compliance with the contingent groundwater protection program is not required.

2.6.1.3.2.1 **Depth to Groundwater.** The PUREX Plant is located in the 200 East Area of the Hanford Facility. The depth to groundwater at this location is over 200 feet (322 meters).

2.6.1.3.2.2 **Sole Source Aquifer.** The PUREX Plant is not located over an area designated as a 'sole source aquifer' under section 1424(e) of the *Safe Water Drinking Act of 1974*.

2.6.1.3.2.3 **Groundwater Management Areas and Special Protection Areas.** The proposed expansion involves only the addition of storage capacity at existing treatment tanks in the PUREX Plant. The storage of waste in the existing tanks is not expected to result in an increased potential for release of dangerous waste to groundwater.

2.6.1.3.2.4 **Groundwater Intakes.** The PUREX Plant is not located within one-quarter mile (0.4 kilometer) of a groundwater intake for domestic water.

2.6.1.4 **Plants and Animals.** The proposed expansion will not result in an increased potential for dangerous waste to contaminate plant and animal habitat in the event of a release of dangerous waste.

2.6.1.5 **Precipitation.** The PUREX Plant is not located in an area having a mean annual precipitation level of greater than 100 inches (254 centimeters).

2.6.2 Criteria for Elements of the Built Environment

No modification to the existing PUREX Plant is planned as part of the proposed action. The addition of storage capacity to existing treatment tanks will have no impact to the built environment as no physical modification of the existing waste management unit is planned. Demonstration of consideration of criteria for elements of the built environment as specified by WAC 173-303-282(7) is therefore not considered applicable.

3.0 TEN-YEAR COMPLIANCE HISTORY

The U.S. Department of Energy, DOE Richland Field Office, has not received any notice of noncompliance since the 222-S Laboratory Complex--219-S Waste Handling Facility NOI was filed in November 1991.

4.0 JUSTIFICATION OF NEED

The addition of storage capacity to the PUREX Plant tanks U3, U4, and F18 is being pursued as part of ongoing waste minimization efforts. Storage of liquids in the existing treatment tanks will allow the accumulation of waste in the tanks until sufficient quantities are available to treat and transfer without the addition of water. This will eliminate the present practice of sometimes adding water to the tanks to achieve the minimum liquid level required for treatment and transfer within 90 days following receipt of the waste. The quantity of waste generated at the PUREX Plant will be reduced, as well as the quantity of waste requiring storage at the Double-Shell Tank System.

5.0 IMPACT ON OVERALL CAPACITY AT THE HANFORD FACILITY AND THE STATE OF WASHINGTON

The current capacity for storing, treating, and/or disposing of liquid mixed waste is limited within Washington State and the Hanford Facility. The expansion of the PUREX Plant waste management unit to allow for tank storage in tanks U3, U4, and F18 will reduce the volume of waste required to be stored and subsequently treated on the Hanford Facility. No negative environmental impacts as a result of the expansion have been identified.

6.0 REFERENCES

COE, 1969, *Lower Columbia River Standard Project Flood and Probable Maximum Flood*, U.S. Army Corps of Engineers, North Pacific Division, Portland, Oregon.

DOE-RL, 1988, *Hanford Facility Dangerous Waste Part A Permit Application*, DOE/RL-88-21, Vols. 1-3, U.S. Department of Energy-Richland Operations Office, Richland, Washington.

Ecology, 1991, *Dangerous Waste Regulations*, Washington Administrative Code, Chapter 173-303, Washington State Department of Ecology, Olympia, Washington.

ERDA, 1976, *Evaluation of Impact of Potential Flooding Criteria on the Hanford Project*, RLO-76-4, U.S. Energy Research and Development Administration-Richland Operations Office, Richland, Washington.

FEMA, 1980, *Flood Insurance Study: Benton County Washington*, Federal Emergency Management Agency, Federal Insurance Administration, Washington, D.C.

ICBO, 1991, *Uniform Building Code*, International Conference of Building Officials, Whittier, California.

Safe Drinking Water Act of 1974, 42 USC 300f et seq.

Shoreline Management Act of 1971, Revised Code of Washington, Chapter 90.58.101 et seq., Olympia, Washington.

Skaggs, R.L. and W.H. Walters, 1981, *Flood Risk Analysis of Cold Creek Near the Hanford Site*, PNL-4219, Pacific Northwest Laboratory, Richland, Washington.

State Environmental Policy Act of 1971, 42 USC 4321.

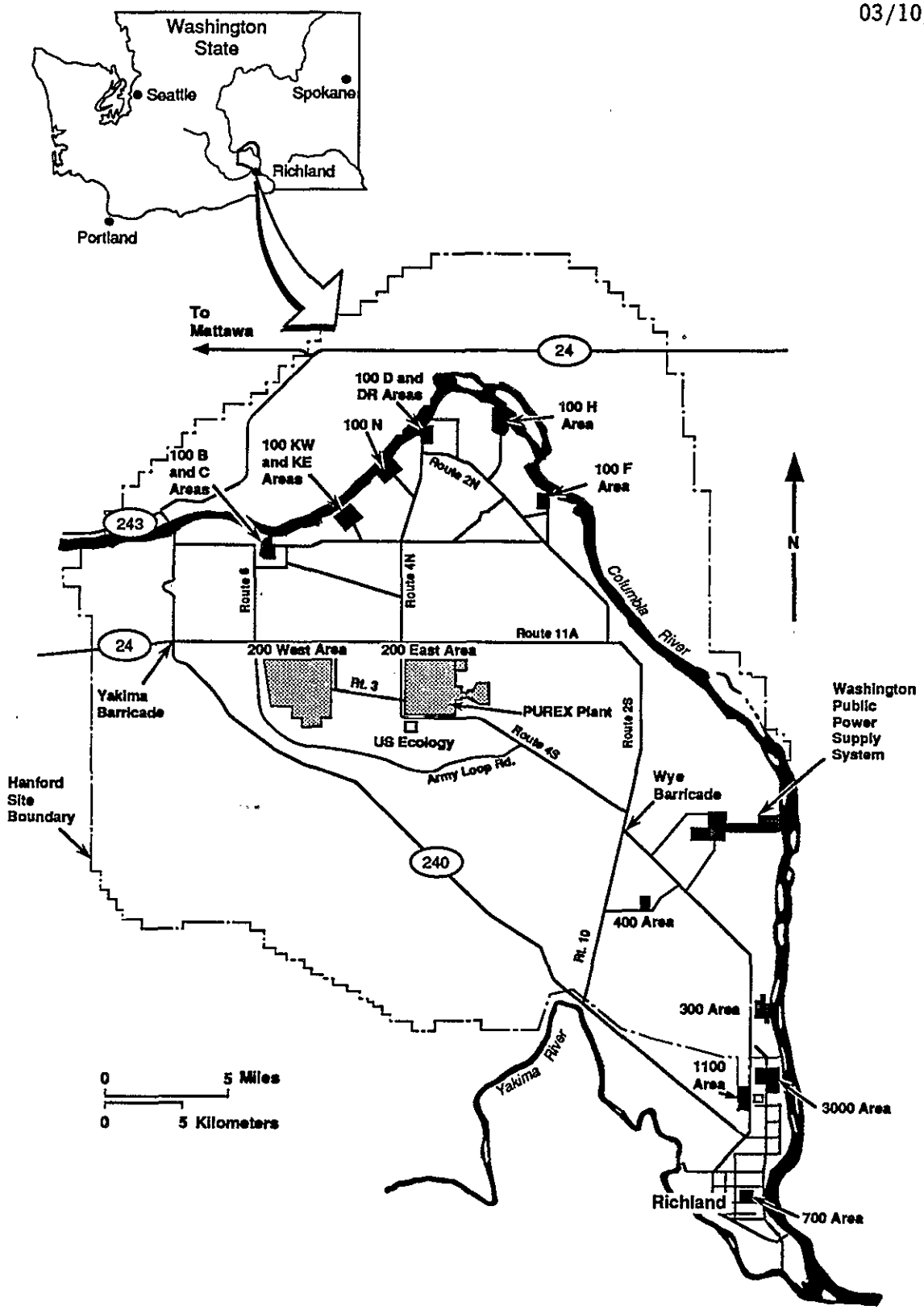

Figure 1. Hanford Site.

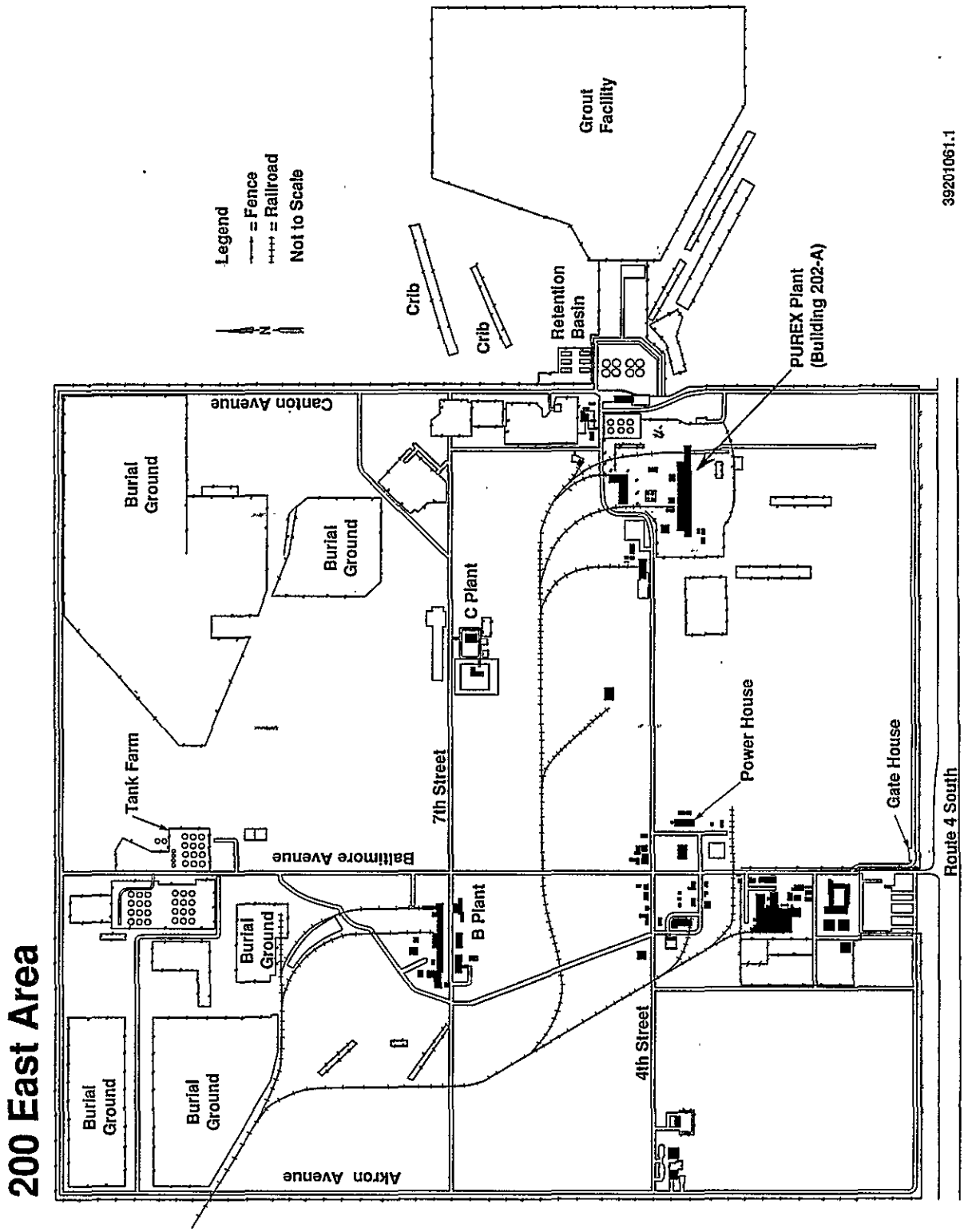

Figure 2. Location of the PUREX Plant.

Tank-U3/U4 Waste Stream Flow Diagram

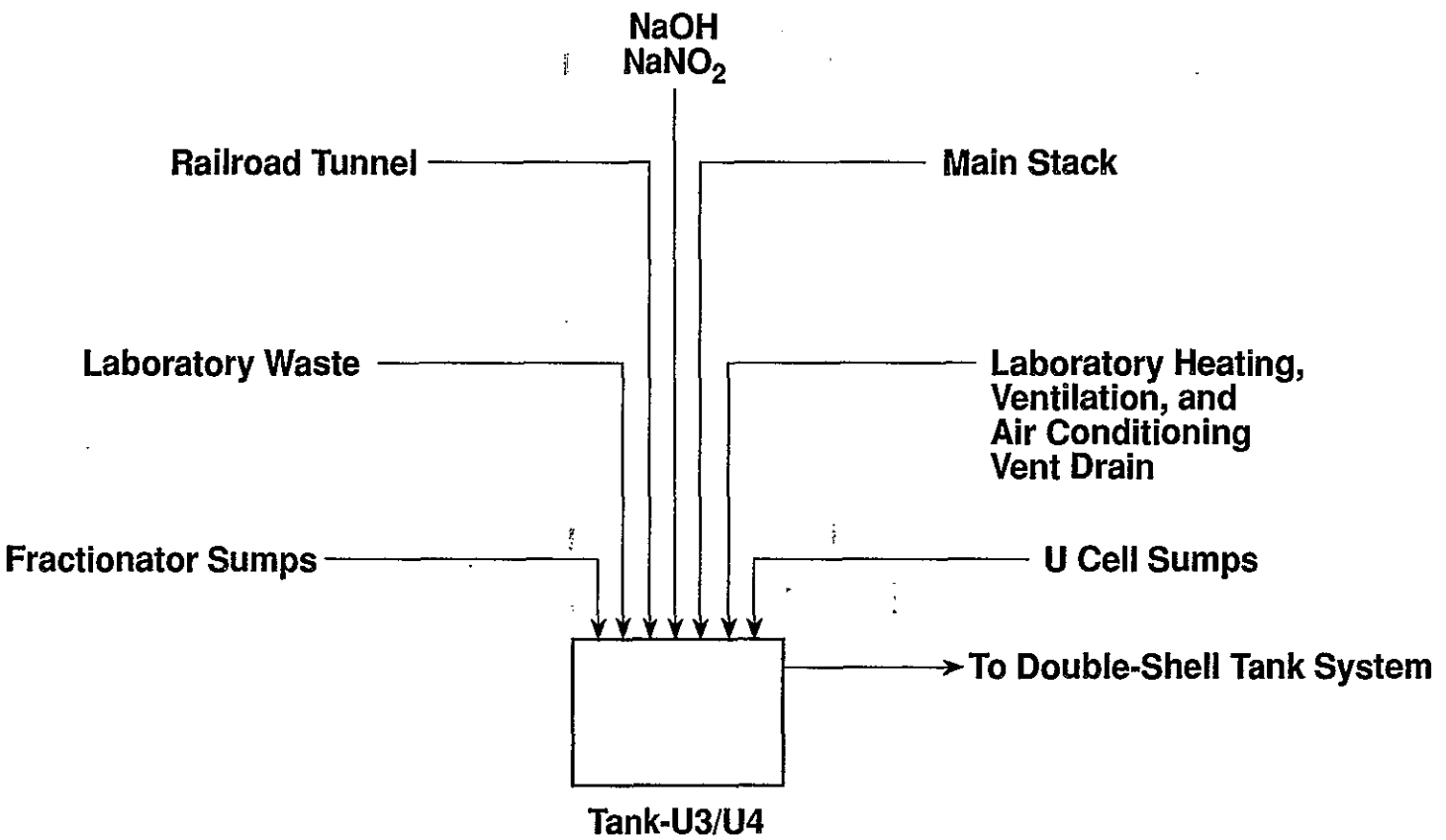

Figure 3. Tanks U3 and U4 Waste Stream Flow Diagram.

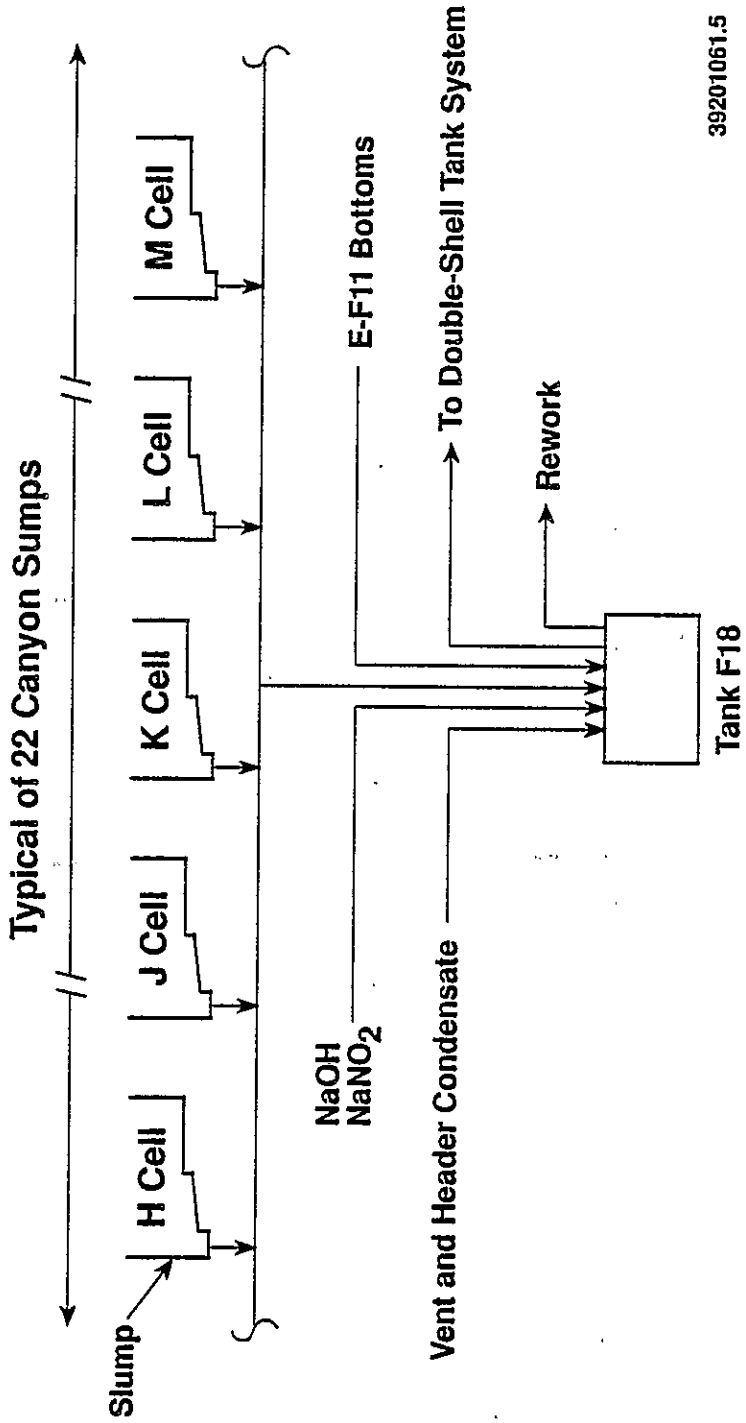

Figure 4. Tank F18 Waste Stream Flow Diagram.

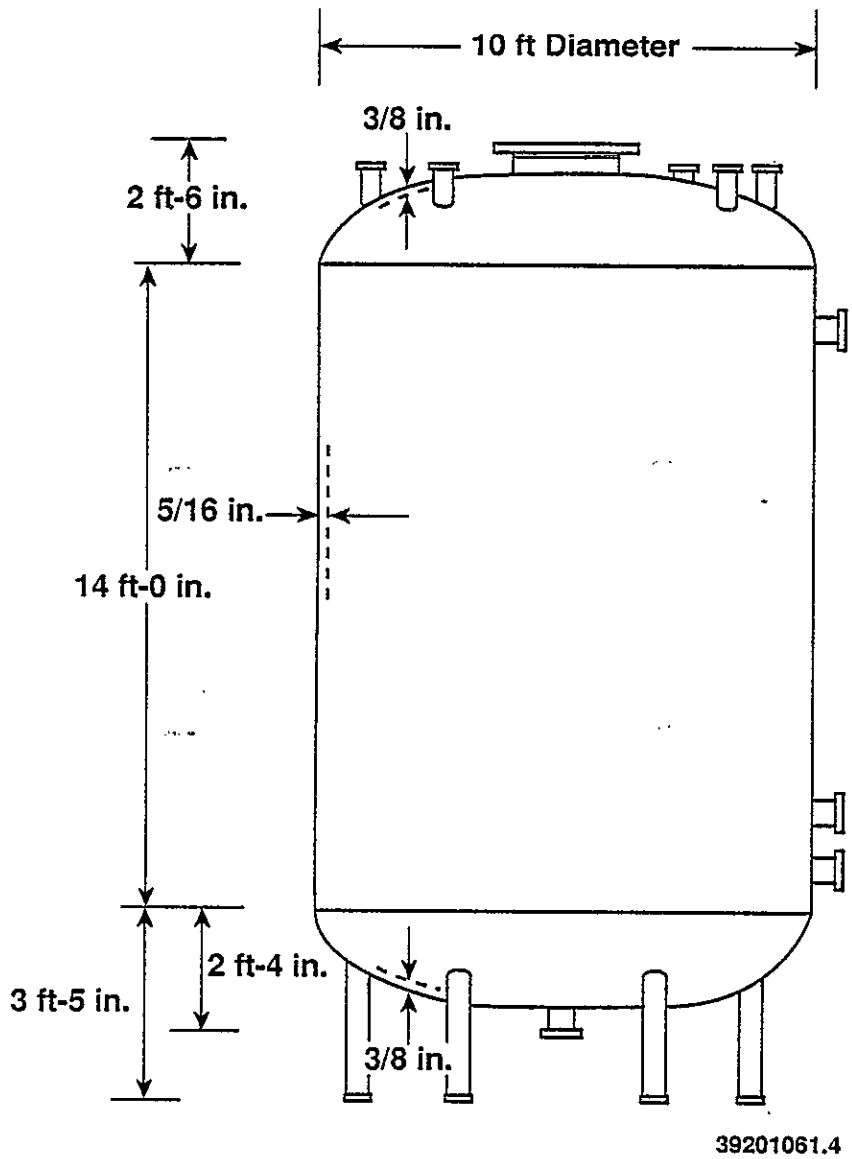

Figure 5. U-Cell Tank [8,000-Gallon (30,283-Liter)] (Typical of Tank U3 and Tank U4).

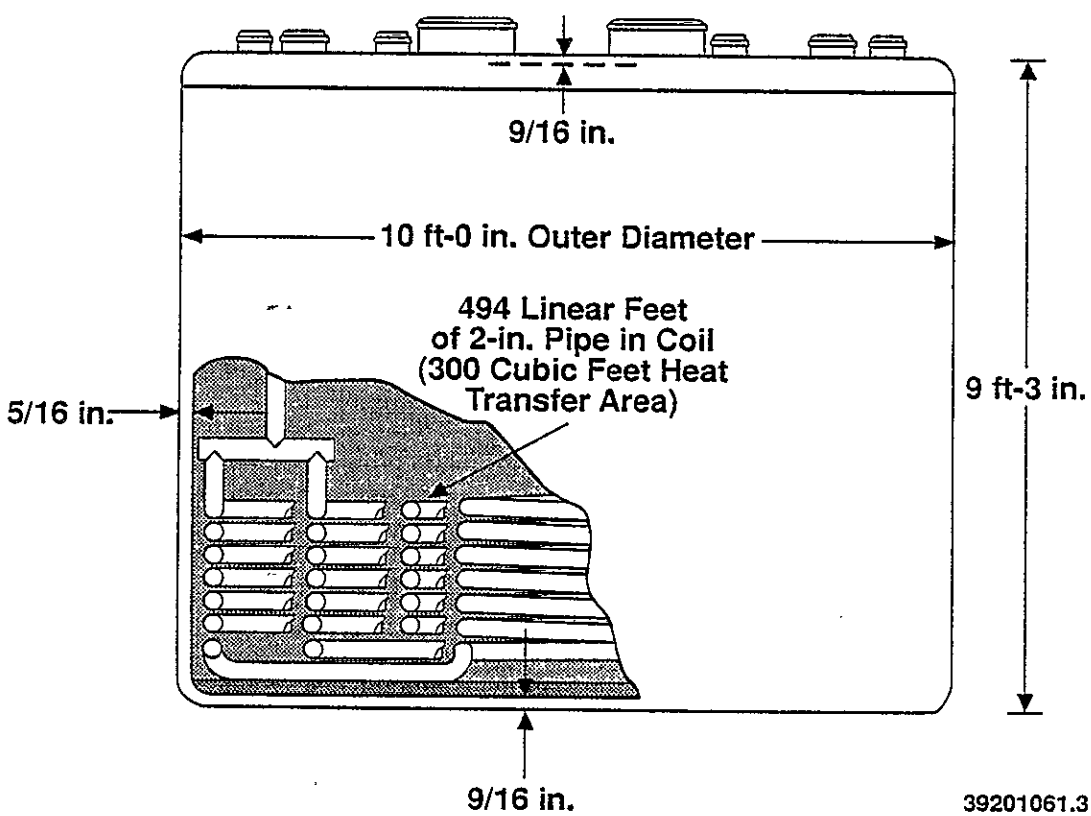

Figure 6. Standard Tank [5,000-Gallon (18,927-Liter)] (Typical of Tank F18).

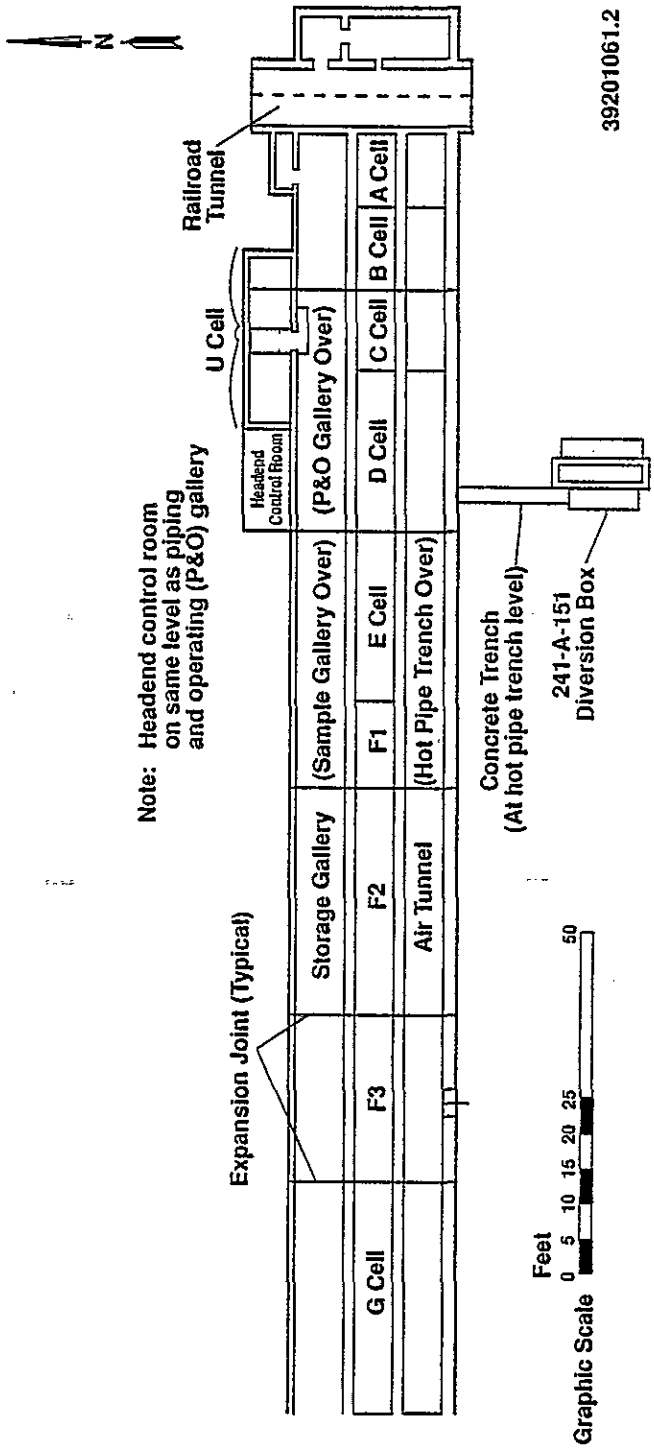

Figure 7. The PUREX 202-A Building Partial Floor Plan.

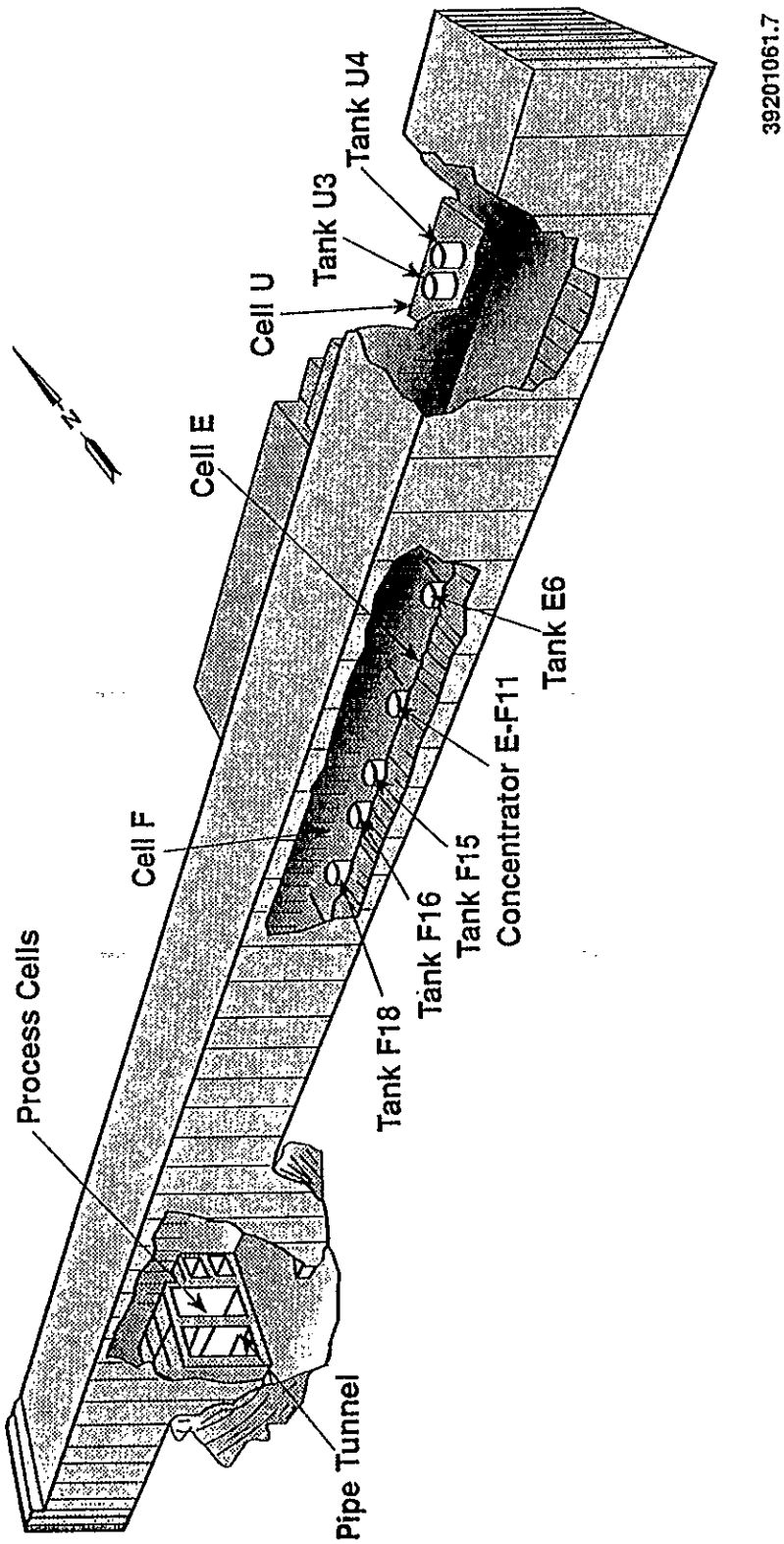

Figure 8. Cut-a-way View of the PUREX Plant Showing Locations of Tanks U3, U4, and F18.

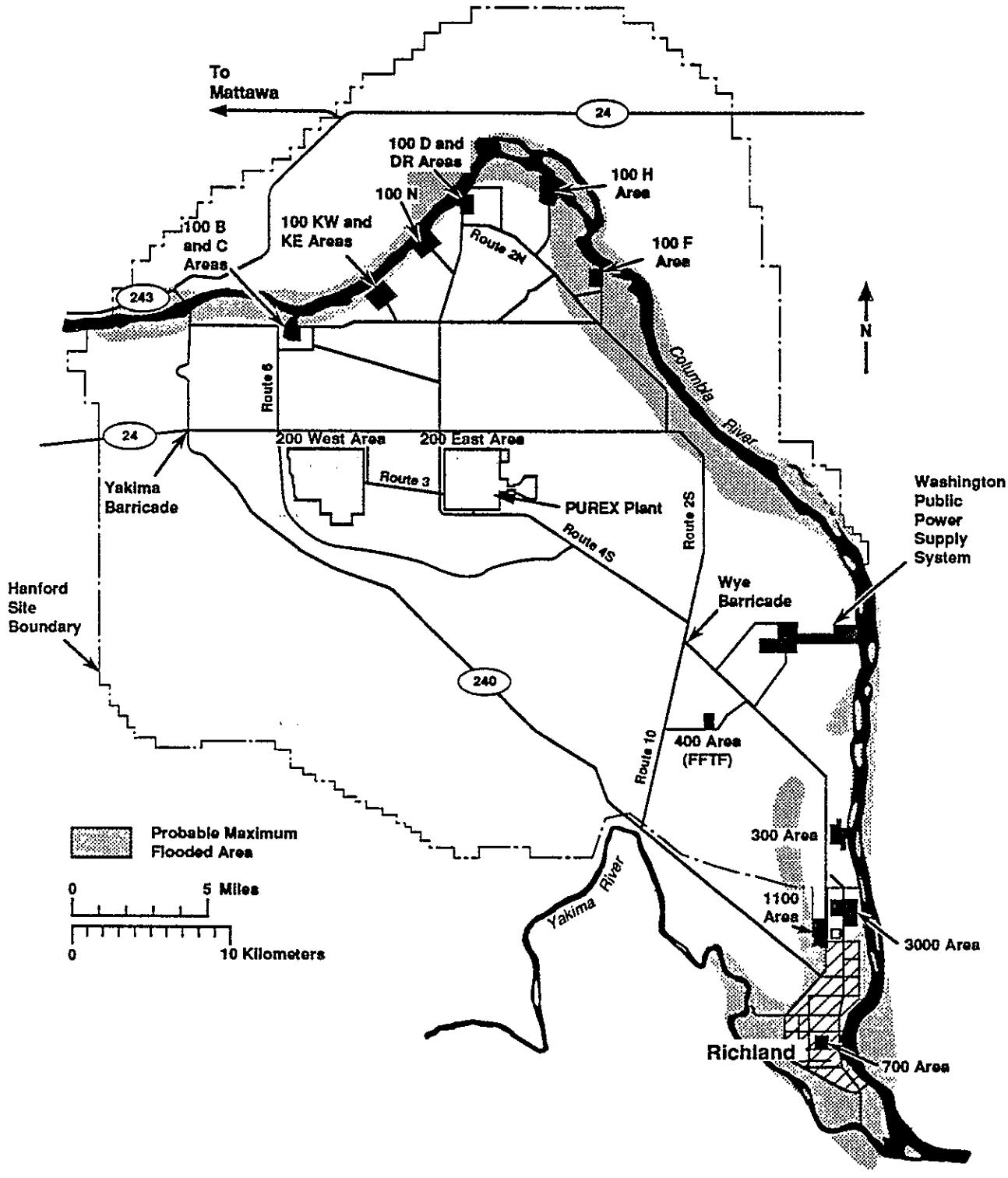

Figure 9. Columbia River Floodplain (probable maximum flood).

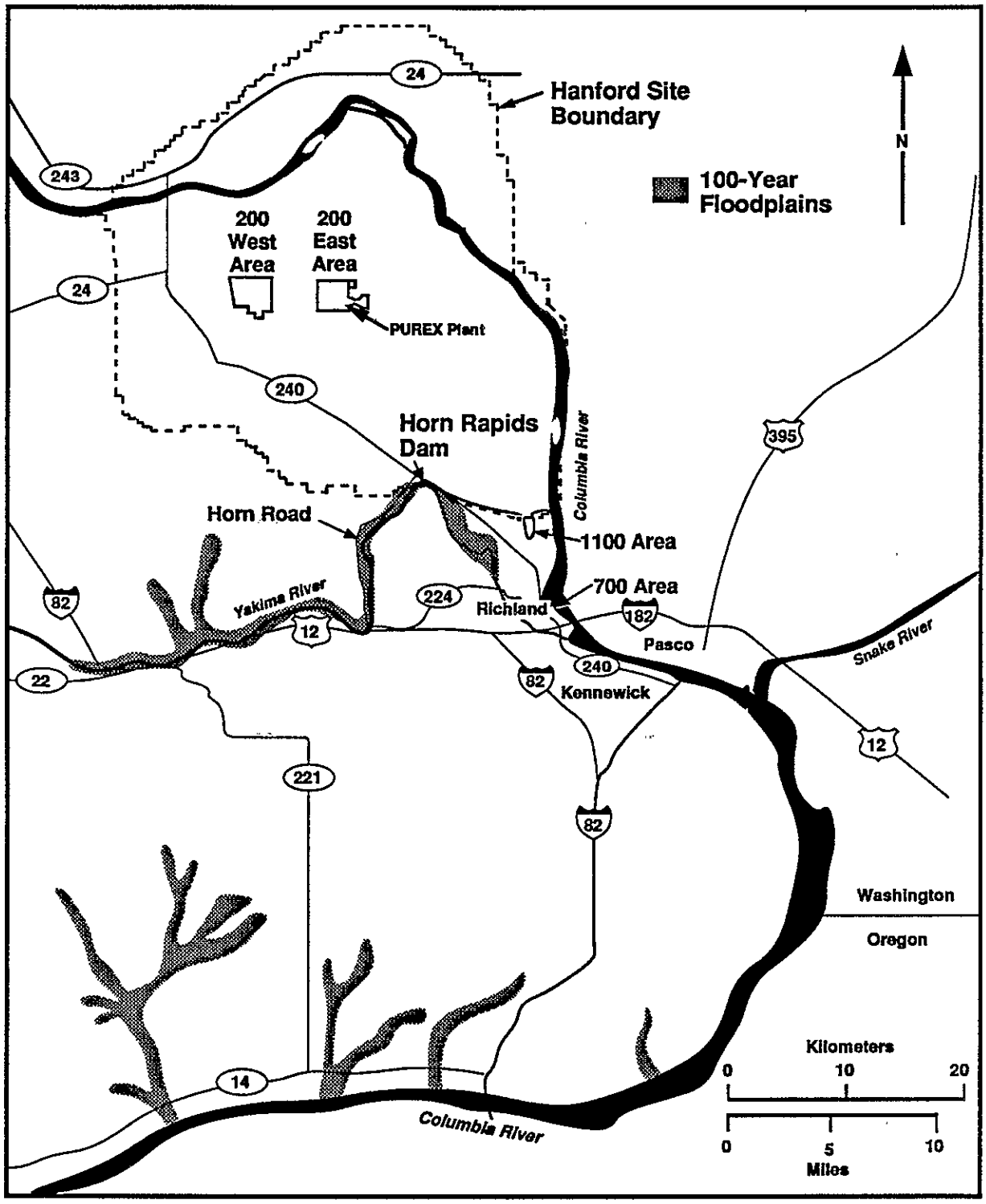

Figure 10. Yakima River Floodplain.

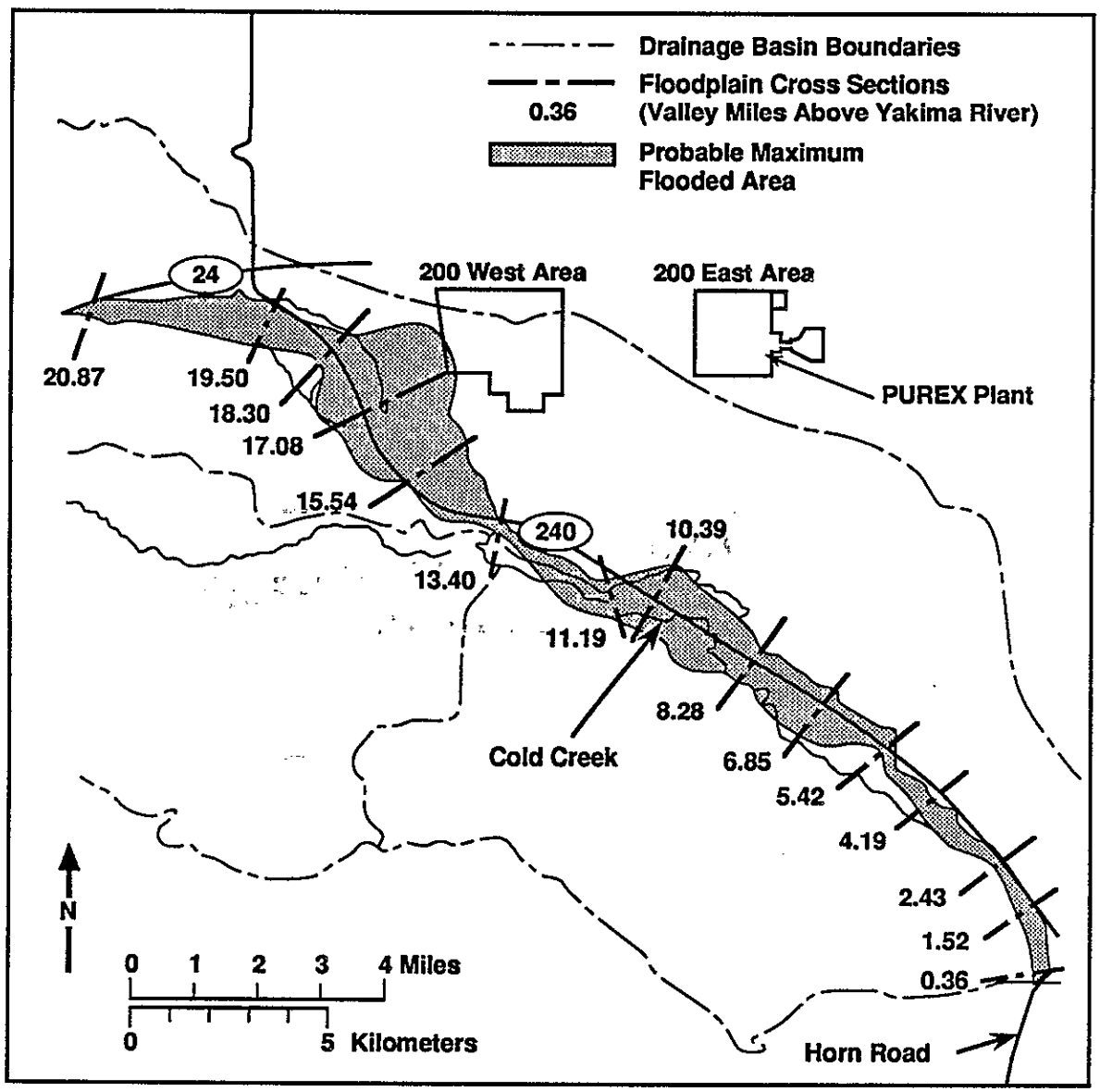

Figure 11. Cold Creek Watershed Floodplain.

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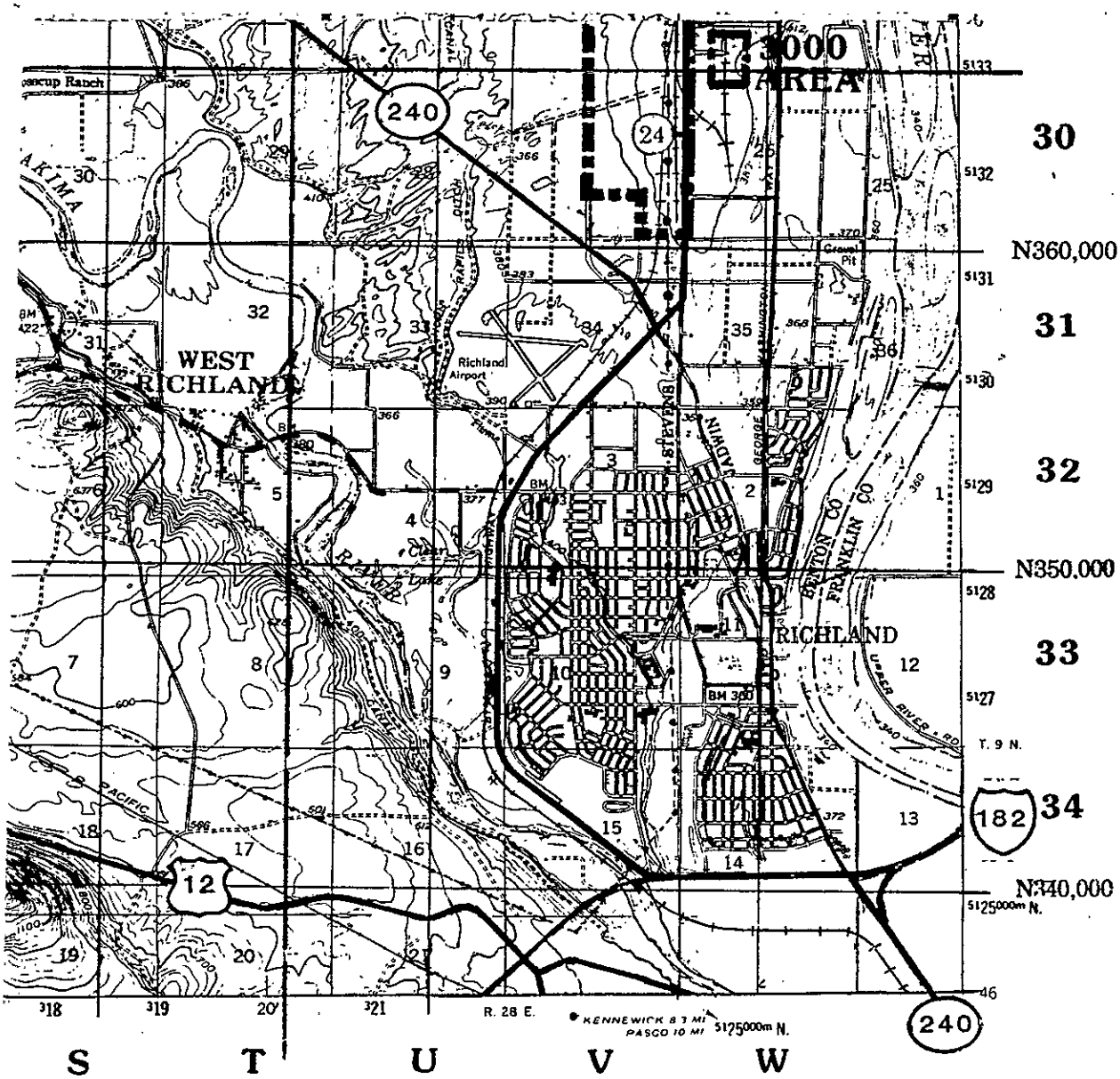
APPENDIX A

HANFORD SITE MAPS

APPENDIX A

CONTENTS



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CHECKED	3/3/87
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U. S. Department of Energy
Richland Operations Office

Westinghouse Hanford Company

OVERALL HANFORD FACILITIES

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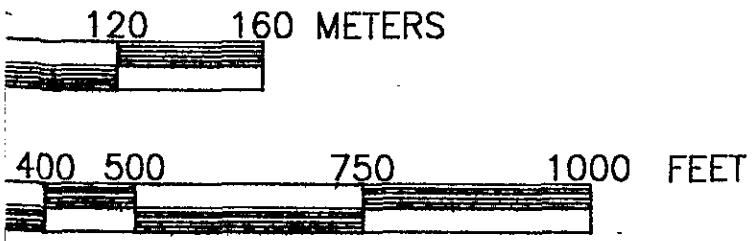

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Richland Operations Office
Westinghouse Hanford Company

TOPOGRAPHIC MAP
PUREX PLANT

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U.S. DEPARTMENT OF ENERGY
Richland Operations Office
Westinghouse Hanford Company

PUREX PLANT
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APPENDIX B

STATE ENVIRONMENTAL POLICY ACT ENVIRONMENTAL CHECKLIST

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STATE ENVIRONMENTAL POLICY ACT
ENVIRONMENTAL CHECKLIST

FOR

THE PUREX PLANT

REVISION 0

MARCH 1992

WASHINGTON ADMINISTRATIVE CODE
ENVIRONMENTAL CHECKLIST FORMS
[WAC 197-11-960]

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A. BACKGROUND

1. Name of proposed project if applicable:

Expansion of the Hanford Facility PUREX Plant waste management unit. This *State Environmental Policy Act* (SEPA) *of 1971* Checklist is being submitted concurrently with the PUREX Plant Notice of Intent (NOI) of interim status expansion. Waste management activities at the PUREX Plant are planned to be expanded to allow dangerous waste storage in existing treatment tanks U3, U4, and F18.

2. Name of applicants:

U.S. Department of Energy, DOE Richland Field Office (DOE-RL); and Westinghouse Hanford Company.

3. Address and phone number of applicant and contact person:

U.S. Department of Energy
DOE Richland Field Office
P.O. Box 550
Richland, Washington 99352

Contact Persons:

R. D. Izatt, Program Manager
Office of Environmental Assurance,
Permits and Policy
(509) 376-5441

Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

R. E. Lerch, Manager
Environmental Division
(509) 376-5556

4. Date checklist prepared:

March 10, 1992

5. Agency requesting the checklist:

Washington State
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504-8711

6. Proposed timing or schedule (including phasing, if applicable):

The NOI for interim status expansion of the PUREX Plant is being submitted in accordance with the Washington Administrative Code (WAC) 173-303-281 "Notice of Intent," Section (2) Item (c). A modification to the existing Part A permit application is planned to be submitted to Ecology following the 150-day notification period required by the WAC. Dangerous waste storage in treatment tanks U3, U4, and F18 will commence as needed thereafter following submittal of the revised Part A permit application.

7. **Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.**

No.

8. **List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.**

- The SEPA Checklist is being submitted concurrently with the NOI for expansion of the PUREX Plant waste management unit.

- A Part A Dangerous Waste Permit Application for the PUREX Plant initially was submitted to Ecology on November 25, 1987. Revision 1 was submitted on May 19, 1988, Revision 2 of the Part A permit application was submitted October 18, 1989 and is presently in effect. Revision 3 of the Part A permit application is planned following the 150-day notification period.

- A Part B permit application for the PUREX Plant currently is scheduled to be submitted to Ecology on September 30, 1992.

- The PUREX Plant is discussed in the following *National Environmental Policy Act* documentation: *Environmental Impact Statement, Operation of PUREX and Uranium Oxide Plant Facilities*, DOE/EIS-0089 (U.S. Department of Energy, 1983, Washington, D.C.).

Environmental information on the Hanford Site, in general, can be found in the following references: (1) *Final Environmental Impact Statement - Disposal of Hanford Defense High-Level, Transuranic and Tank Wastes*, DOE/EIS-0113 (U.S. Department of Energy 1987, Richland, Washington); (2) *Hanford Site National Environmental Policy Act (NEPA) Characterization*, PNL-6415 (Revision 4, Pacific Northwest Laboratory 1991, Richland, Washington); (3) *Draft Environmental Impact Statement -Decommissioning of Eight Surplus Production Reactors at the Hanford Site, Richland, Washington*, DOE/EIS-0119D (U.S. Department of Energy 1989, Washington, D.C.); and (4) *Archaeological Survey of the 200 East and 200 West Areas, Hanford Site, Washington*, PNL-7624 (Pacific Northwest Laboratory 1990, Richland, Washington).

9. **Do you know whether applications are pending for government approvals of other proposals directly affecting property covered by your proposal? If yes, explain.**

No.

10. **List any government approvals or permits that will be needed for your proposal, if known.**

A modification to the Part A and a Part B Dangerous Waste Permit Application will be submitted following the notification period.

11. **Give a brief, complete description of your proposal, including the proposed uses and the size of the project and site.**

Dangerous waste management activities at the PUREX Plant are being expanded under interim status to add the capability for tank storage in waste treatment tanks U3, U4, and F18 as part of ongoing waste minimization efforts. The Part A Dangerous Waste Permit Application, Form 3, will be modified to add the process code "S03" specifying tank storage for the designated tanks. This modification will result in the reduced generation of mixed waste at the PUREX Plant and also will reduce the volume of mixed (radioactive dangerous) waste subsequently required to be stored in the Double-Shell Tank System.

Tanks U3, U4, and F18 presently are operated under interim status and are used for waste treatment only. Mixed waste generated at the PUREX Plant is collected in the tanks, chemically adjusted to meet the waste acceptance criteria of the Double-Shell Tank System, and transferred to a designated Double-Shell Tank within 90 days. A minimum liquid level is required in the tanks to allow agitation, sampling, and transfer. If the minimum liquid level is not present in the tanks, water must be added resulting in a greater quantity of waste that subsequently must be managed. The expansion of the waste management unit to allow waste storage in tanks U3, U4, and F18 will allow waste to be accumulated in the tanks until an adequate volume is available for transfer without the addition of water. This will facilitate waste transfer operations and also will serve to reduce the volume of waste generated by routine operations at the PUREX Plant.

12. **Give the location of the proposal. Give sufficient information for a person to understand the precise location of the proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available.**

The PUREX Plant is located in the southeast corner of the 200 East Area (on 4TH Street) in the center of the 560 square mile (1,450 square kilometer) Hanford Site. A legal description is provided in Appendix A of the NOI.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (indicate one): Flat, rolling, hilly, steep, mountainous, other.

Flat.

b. What is the steepest slope on the site (approximate percent slope)?

The approximate slope of the land at the PUREX Plant is less than two percent.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

The soil at the PUREX Plant consists primarily of silty, sandy gravel. No farming is permitted at the 200 East Area.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

No. There has been no history of unstable soils or subsidence in the area of this waste management unit.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate the source of the fill.

None.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Not applicable for this proposal.

g. Approximately what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

No construction is proposed.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any?

No impacts are expected as a result of the proposal.

2. Air

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

No added emissions are expected to occur as a result of the proposal. Approximate quantities of air emissions from the PUREX Plant are given in documentation titled *Calendar 1990 Air Emissions Report for the Hanford Site* (DOE-RL 1991).

b. Are there any off-site sources of emissions or odors that may affect your proposal? If so, generally describe.

No.

c. Proposed measures to reduce or control emissions or other impacts to the air, if any?

None.

3. Water

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

There is no surface water body on or in the immediate vicinity of the PUREX Plant. Two intermittent streams traverse through the Hanford Site. These are Cold Creek and Dry Creek. Water drains through these creeks during the wetter winter and spring months. No perennial streams originate within the Pasco Basin. Primary surface-water features associated with the Hanford Site are the Columbia and Yakima Rivers, and their major tributaries, the Snake and Walla Walla Rivers. West Lake, about 10 acres (4.05 hectares) in size and less than 3 feet (0.9 meter) deep, is the only natural lake within the Hanford Site. Waste water ponds, cribs, and ditches associated with nuclear fuel reprocessing and waste disposal activities also are present on the Hanford Site.

2) Will the project require any work over, in, or adjacent to [within 200 feet (61 meters) of] the described waters? If yes, please describe and attach available plans.

No.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

None.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

No.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No.

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities, if known.

No.

2) Describe waste materials that will be discharged into the ground from septic waste tanks or other sources, if any (for example: domestic sewage; industrial, containing the following chemicals...; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No additional waste water will be discharged into the ground as a result of this proposal.

c. Water run-off (including storm water):

1) Describe the source of run-off (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

The Hanford Facility, which includes the PUREX Plant, has a mild desert climate and receives only 6 to 7 inches (15 to 18 centimeters) of annual precipitation. Any precipitation that occurs at the site will run-off the existing buildings and seep into the soil on and near the site. No run-off is expected to enter surface waters.

2) Could waste materials enter ground or surface waters? If so, generally describe.

No additional potential for waste materials to enter ground or surface waters will occur as a result of the proposal.

d. Proposed measures to reduce or control surface, ground, and run-off water impacts, if any:

None.

4. Plants

a. Check the types of vegetation found on the site:

___ deciduous tree: alder, maple, aspen, other
___ evergreen tree: fir, ceder, pine, other
_x_ shrubs
_x_ grass
___ pasture
___ crop or grain
___ wet soil plants: cattail, buttercup, bulrush, skunk cabbage, other
___ water plants: water lily, eelgrass, milfoil, other
_x_ other types of vegetation

The vegetation on the site consists of sagebrush, forbs, and other common central Washington desert plant species.

b. What kind and amount of vegetation will be removed or altered?

None.

c. List threatened or endangered species known to be on or near the site.

The Columbia milk-vetch and yellowcress are threatened and endangered plants occurring on the Hanford Site. Additional information concerning endangered and threatened species on the Hanford Site can be found in the environmental documents referred to in the answer to Checklist Question A.8.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Not applicable.

5. Animals

a. Indicate (by underlining) any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: hawk, heron, eagle, songbirds, other
mammals: deer, bear, elk, beaver, other
fish: bass, salmon, trout, herring, shellfish, other

A variety of insects, birds, and mammals common to the Hanford Site, including pigeons, passerine birds, rodents, badgers, porcupines, and rabbits have been observed near the PUREX Plant site. Larger mammals

commonly seen in the vicinity include deer and coyote. Additional information on birds and animals on the Hanford Site can be found in the environmental documents referred to in the answer to Checklist Question A.8.

b. List any threatened or endangered species known to be on or near the site.

None. However, additional information concerning endangered and threatened species on the Hanford Site can be found in the environmental documents referred to in the answer to checklist Question A.8.

c. Is the site part of a migration route? If so, explain.

The site is part of the region-wide Pacific flyway for waterfowl.

d. Proposed measures to preserve or enhance wildlife, if any:

None.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Diesel fuel, gasoline, oil, propane gas, and electrical power are used to operate equipment, power building ventilation and lighting systems, and provide process heating. No additional demand on energy will occur as a result of the proposal.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

None.

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

No increase to existing environmental health hazards is expected as a result of the proposal.

1) Describe special emergency services that might be required.

Hanford Facility security, fire response, and ambulance services are on call 24 hours a day, 7 days a week, in the event of an onsite emergency.

2) Proposed measures to reduce or control environmental health hazards, if any:

The following are current measures used to control environmental health hazards: staged ventilation control, protective clothing, physical isolation, radiation shielding, pre-job planning, and specialized personnel training are used to maintain personnel exposure as low as reasonably achievable (ALARA). The ALARA program applies to both radioactivity and hazardous chemical substance exposure.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

None.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

None.

3) Proposed measures to reduce or control noise impacts, if any:

None.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties?

The PUREX Plant is located within the 200 East Area of the Hanford Site. The Hanford Site is owned by the U.S. Government and is used for the production of special nuclear materials and the management of wastes associated with the production of those materials.

b. Has the site been used for agriculture? If so, describe.

No portion of the 200 East Area, including the site of the PUREX Plant, has been used for agricultural purposes since 1943.

c. Describe any structures on the site.

Various structures associated with the operation of the PUREX Plant presently exist on the site. These structures are identified in the drawings submitted as part of the NOI.

d. Will any structures be demolished? If so, what?

No.

e. What is the current zoning classification of the site?

The Hanford Site is zoned by Benton County as an Unclassified Use (U) district.

f. What is the current comprehensive plan designation of the site?

The 1985 Benton County Comprehensive Land Use Plan designates the Hanford Site as the "Hanford Reservation". Under this designation, land on the Hanford Site may be used for "activities nuclear in nature." Nonnuclear activities are authorized "if and when DOE approval for such activities is obtained."

g. If applicable, what is the current shoreline master program designation of the site?

Does not apply.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

No.

i. Approximately how many people would reside or work in the completed project?

The PUREX Plant currently has a work force of approximately 500 fulltime personnel. The proposal will not effect staffing.

j. Approximately how many people would the completed project displace?

None.

k. Proposed measures to avoid or reduce displacement impacts, if any:

None.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

None.

1) Describe special emergency services that might be required.

Hanford Facility security, fire response, and ambulance services are on call 24 hours a day, 7 days a week, in the event of an onsite emergency.

2) Proposed measures to reduce or control environmental health hazards, if any:

The following are current measures used to control environmental health hazards: staged ventilation control, protective clothing, physical isolation, radiation shielding, pre-job planning, and specialized personnel training are used to maintain personnel exposure as low as reasonably achievable (ALARA). The ALARA program applies to both radioactivity and hazardous chemical substance exposure.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

None.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

None.

3) Proposed measures to reduce or control noise impacts, if any:

None.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties?

The PUREX Plant is located within the 200 East Area of the Hanford Site. The Hanford Site is owned by the U.S. Government and is used for the production of special nuclear materials and the management of wastes associated with the production of those materials.

b. Has the site been used for agriculture? If so, describe.

No portion of the Hanford Site, including the site of the PUREX Plant, has been used for agricultural purposes since 1943.

c. Describe any structures on the site.

Various structures associated with the operation of the PUREX Plant presently exist on the site. These structures are identified in the drawings submitted as part of the NOI.

d. Will any structures be demolished? If so, what?

No.

e. What is the current zoning classification of the site?

The Hanford Site is zoned by Benton County as an Unclassified Use (U) district.

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g. If applicable, what is the current shoreline master program designation of the site?

Does not apply.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

No.

i. Approximately how many people would reside or work in the completed project?

The PUREX Plant currently has a work force of approximately 500 fulltime personnel. The proposal will not effect staffing.

j. Approximately how many people would the completed project displace?

None.

k. Proposed measures to avoid or reduce displacement impacts, if any:

None.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

None.

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high-, middle-, or low-income housing.

None.

b. Approximately how many units, if any, would be eliminated? Indicate whether high-, middle-, or low-income housing.

None.

c. Proposed measures to reduce or control housing impacts, if any:

None.

10. **Aesthetics**

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

No construction is proposed.

b. What views in the immediate vicinity would be altered or obstructed?

None.

c. Proposed measures to reduce or control aesthetic impacts, if any:

None.

11. **Light and Glare**

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

None.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No.

c. What existing off-site sources of light or glare may affect your proposal?

None.

d. Proposed measures to reduce or control light and glare impacts, if any:

None.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

None.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any?

None.

13. Historic and Cultural Preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

No places or objects listed on, or proposed for, national, state, or local preservation registers are known to be on or next to the PUREX Plant. Additional information on the Hanford Site environment can be found in the environmental documents referred to in the answer to Checklist Question A.8.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

There are no known archaeological, historical, or native American religious sites at or next to the PUREX Plant. Additional information on the Hanford Site environment can be found in the environmental documents referred to in the answer to Checklist Question A.8.

c. Proposed measures to reduce or control impacts, if any:

Where appropriate, a cultural resource review will provide the vehicle for necessary approvals required under the *National Historic Preservation Act of 1966*.

14. **Transportation**

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

The site is not publicly accessible. Streets and highways serving the site are identified in the site maps included as part of the NOI.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

The site is not publicly accessible, and, therefore, is not served by public transportation. The nearest public transit is 25 miles (40 kilometers) away.

c. How many parking spaces would the completed project have? How many would the project eliminate?

Not applicable.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

No.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

Peak traffic volumes will occur at the beginning and end of regular working shifts. Many employees, however, will use the Hanford Site shuttle bus system that transports employees from northern Richland to the site. No increase in vehicular traffic will occur as a result of the proposal.

g. Proposed measures to reduce or control transportation impacts, if any:

Not applicable.

15. Public Services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

No.

b. Proposed measures to reduce or control direct impacts on public services, if any:

Not applicable.

16. Utilities

a. List utilities currently available at the site (electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other):

Electricity, telephone, water, and septic system are available at the site.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

No additional utilities are proposed.

SIGNATURES

The answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Robert D. Izatt/for
R. D. Izatt, Program Manager
Office of Environmental Assurance
Permits and Policy
U.S. Department of Energy
DOE Richland Field Office

4/10/92
Date

R E Lerch
R. E. Lerch, Manager
Environmental Division
Westinghouse Hanford Company

3-20-92
Date

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